

ANALYSIS OF THE FIRE OF FEBRUARY 15, 2022
AT 159 CONKLIN AVENUE in the City of
BINGHAMTON, NEW YORK

*State of New
York vs.
Marquetta James Case*

Broome County in the
State of New York
Case No. 22-112

A handwritten signature in black ink, appearing to read 'M. Fennell', is centered on the page.

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Submitted to:

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INTRODUCTION

This analysis of the fire incident at the residence located at 159 Conklin Avenue, in Binghamton, New York. It is intended to serve as a disclosure of my expert opinions concerning this fire incident. This analysis is based on my review of documents, information, data, and evidence concerning the fire incident that occurred on the morning of February 15, 2022.

In developing my analysis and opinions, I have relied heavily on my knowledge of the Combustion and Fire Sciences, Chemistry and Chemical Engineering, Mechanical Engineering, Fire Protection Engineering, Fire Dynamics, Explosion Dynamics, Fire Modeling, Heat Transfer, Smoke and Fire Detection and Notification, Fire Origin and Cause Investigations, Ignition, Flame Spread, and Toxicology.

The analysis and opinions expressed in this report are based on my knowledge of facts and data reviewed to date. All opinions are held to a reasonable degree of professional and engineering certainty. If my opinions (or the bases for them) as expressed below change or if new opinions are formulated as a result of additional information that becomes available, I will amend or supplement my opinions appropriately.

Analysis of the State's Fire Investigation

Based on the available data and the Binghamton Fire and Police Department's fire investigation, the following sections provide an analysis of the reliability of the application of the methodology used. The relevant methodology is the Scientific Method. The unreliable application of the Scientific Method produces scientifically unreliable determinations with respect to fire *origin, fire cause, fire cause classification, and responsibility* for the fire. The following sections provide the specific technical bases for the determination that the police and fire investigation of this fire incident is the product of the application of a scientifically unreliable methodology and any determinations or opinions based on the application of an unreliable methodology are also scientifically unreliable.

- **[Unreliable Application of the Scientific Method – Threat of violence]** – The Binghamton Fire and Police investigators utilized the use of a threat as an element of the causation of this fire. Part of this determination was based on an allegation of threat of violence (stalking) that was purported to be between Ms. Adams and Ms. James. Regardless, the investigators determined that this alleged threat did occur and was used as a motive for the fire to happen. The investigators did not apply any fundamentals of fire dynamics to support their determination. They also did not apply any data on the level of fire damage in compartment fires to be used as evidence to support a scientifically reliable determination that the fire was an accidental or undetermined fire.
- **[Unreliable Application of the Scientific Method – Area of fire origin]** – Chapter 18 of NFPA 921 provides a discussion of origin determination:

Fire Marshal Timothy M. O'Neil and Lieutenant Nicholas J. Griswold wrote in their report:

“At 0718 hours on the morning of February 15th, 2022, the Binghamton Fire Department was dispatched to 159 Conklin Ave for a reported building fire. On arrival crews found heavy fire on the 3rd floor in the rear. Multiple hand lines were stretched and crews worked inside for over an hour before fire conditions in the cockloft forced an all-out call and master streams went into operation. Portions of the parapet as well as the roof eventually collapsed into the 3rd floor making structural conditions unsafe for reentry”

into the building. The decision was made for safety reasons that the building would need to be torn down immediately. Crews worked and remained on scene until after 1800 hours while the building was torn down.”

They further wrote:

“A systematic process based on the scientific method was used to examine the fire scene to determine the fire’s origin. This included a visual inspection of the building’s exterior and interior, the evaluation of fuel packages and fire patterns, and the evaluation of available testimonial evidence provided by witnesses. In the process of examining and reconstructing the fire debris, the investigation team developed and tested several hypotheses specifically relating to the origin of the fire. In selecting the final origin hypothesis, the evidence, observations and information identified and evaluated by the investigation team showed that the most intense area of fire development and progression had occurred within the rear porch area of the 3rd floor of the building”

Investigator Nicholas Griswold documented the scene in the form of 79 digital photographic images.

No photos were observed inside the apartment of fire origin that depicted a scientific based fire origin and cause fire investigation.

Based on the fire investigation by Binghamton Fire Department, the fire started on the 3rd floor rear porch, broke the rear porch windows, entered the rear of the apartment, penetrated the ceiling, and consumed the roof trusses within the cockloft causing the roof to collapse onto the 3rd floor apartment (photos during the demolition of the building was used as this determination and his report). This analysis was conducted without entering the apartment of fire origin, examining all potential ignition sources, collecting data, analyzing that data, developing a hypothesis, testing the hypothesis, and selecting a final hypothesis (scientific method). The report does not indicate building geometry, construction materials, pre-fire location of building contents and combustible items, use of fire dynamics principles to evaluate fire flows, temperatures (heat release rates or ignition temperatures), maintenance or lack of maintenance of the building, and the potential for full room involvement.

Recent training exercises and research have revealed that origin determination becomes more difficult if a room has been fully involved in fire for more than a few minutes [Carman 2008, 2010, Tinsley & Gorbett 2012, Cox 2013 Gorbett et al. 2015].

If the fire originated on the patio of the 3rd floor, the wooden construction materials would have sustained mass loss, with energy transitioning vertically in the open air. Based on photography evidence, there is no forensic evidence to support this conclusion.

There is also no evidence to support this conclusion based on the eyewitness statement, primarily Ms. Adams. The only relevant information is that she received an alleged threat and the apartment contained smoke conditions.

[Use of Expectation Bias] – Chapter 4 of NFPA 921 provides a discussion of expectation bias:

4.3.9 Expectation Bias. *Expectation bias is a well-established phenomenon that occurs in scientific analysis when investigator(s) reach a premature conclusion without having examined or considered all of the relevant data. Instead of collecting and examining all of the data in a logical and unbiased manner to reach a scientifically reliable conclusion, the investigator(s) uses the premature determination to dictate investigative processes, analyses, and, ultimately, conclusions, in a way that is not scientifically valid. The introduction of expectation bias into the investigation results in the use of only data that supports the previously formed conclusion and often results in the misinterpretation and/or the discarding of data that does not support the original opinion. Investigators are strongly cautioned to avoid expectation bias through proper use of the scientific method.*

Fire Marshal Timothy M. O’Neil and Lieutenant Nicholas J. Griswold wrote in their report:

“At 0718 hours on the morning of February 15th 2022 the Binghamton Fire Department was dispatched to 159 Conklin Ave for a reported building fire. On arrival crews found heavy fire on the 3rd floor in the rear. Multiple hand lines were stretched and crews worked inside for over an hour before fire conditions in the cockloft forced an all-out call and master streams went into operation. Portions of the parapet as well as the roof eventually collapsed into the 3rd floor making structural conditions unsafe for reentry into the building. The decision was made for safety reasons that the building would need to be torn down immediately. Crews worked and remained on scene until after

1800 hours while the building was torn down.”

Binghamton Police Department Investigator Amanda Miller obtained Ms. James' identity from an interview with Ms. Adams as a person of interest who has alleged to be stalking Ms. Adams. Investigator Miller was able to locate Ms. James within hours of the fire at the DoubleTree Hotel located at 225 Water Street (the fire scene was still active) and was interrogated at the Binghamton Police Department. While being interrogated, Ms. James stated that she returned to Ms. Adams residence at approximately 7:00AM to obtain her Wi-Fi only capable cell phone that was retrieved at the back porch near the trash.

Based on photographs within discovery, the back porch can be accessed by the rear stairway. The stairway is surrounded by Oriented Strand Board wood paneling, wooden floor joint, sheetrock protected walls and wood construction as the roof.

As previously stated, the fire investigation was not complete, and the fire department investigation was inconclusive based on the lack of a NFPA 921 complaint investigation.

- **[Use of Confirmation Bias]** – Chapter 4 of NFPA 921 provides a discussion of confirmation bias:

***4.3.9 Confirmation Bias.** Different hypotheses may be compatible with the same data. When using the scientific method, testing of hypotheses should be designed to disprove a hypothesis (i.e., falsification of the hypothesis), rather than relying only on confirming data that support the hypothesis. Confirmation bias occurs when the investigator relies exclusively on data that supports the hypothesis and fails to look for, ignores, or dismisses contradictory or non-supporting data. The same data may support alternate and even opposing hypotheses. The failure to consider alternate or opposing hypotheses, or prematurely discounting seemingly contradictory data without appropriate analysis and testing can result in incorrect conclusions. A hypothesis can be said to be valid only when rigorous testing has failed to disprove the hypothesis. Disproving the hypothesis is a process in which all the evidence is compared against the proffered hypothesis in an effort to find why the hypothesis is not true.*

Investigator Amanda Miller wrote in her report that she arrested Ms. James for Arson, even

though the fire scene was still active, and the fire origin and cause investigation was not complete. This type of deductive reason is called Confirmation Bias. This type of bias occurs when the investigator fails to use all available data and/or fails to test different theories. Some data may be compatible with different ignition scenarios, making the style of testing the ignition theory critical. NFPA 921 states that “testing of hypotheses should be designed to disprove a hypothesis”. By testing a hypothesis with the intent to disprove it, an investigator will need to look at all the available data to compare it against the hypothesis. Investigator Amanda Miller violated the reliable application of the Scientific Method by not considering and formulating a non-incendiary fire hypothesis based on the same evidence in this specific incident and collaborating with Fire Marshal Timothy M. O’Neil and Lieutenant Nicholas J. Griswold. Thus, Investigator Amanda Miller determinations were the product of the application of an unreliable methodology that produces unreliable determinations and opinions. In fact, Fire Marshal Timothy M. O’Neil and Lieutenant Nicholas J. Griswold wrote in their report that the fire classification is undetermined.

- **[Unreliable Application of the Scientific Method - Eyewitness Observations]** – The Binghamton Police and Fire Department unreliably used eyewitness observations of the fire when it was first observed as evidence of the location of the fire origin. In addition, their investigation used the fire origin determination, as evidence for an incendiary fire.

Notwithstanding the application of the unreliable methodology (i.e., Negative Corpus), their interpretation of the eyewitness observations of the fire when it was first observed was also incorrect and unreliable. Their investigation places the first observation of the fire on the rear patio of the 3rd floor. The use of the rear patio of the 3rd floor as the location of the fire when it was first observed is *information* that is not documented or verified to be *data* in this specific incident. *Information* that is not documented or verified is subjective in nature, while

data is objective because it can be documented and verified. *Information* does not directly translate into *evidence*. Thus, the formulation of hypotheses through the application of the Scientific Method without evidence is an unreliable methodology and any determination is the product of the same. They were unable to enter the apartment due to structure collapse and examine all ignition sources. The observation of the fire on the patio does not necessarily identify that to be the fire origin.

- **[Unreliable Application of the Scientific Method - Use of a Negative Corpus Methodology]** – The scientific reliable application of the Scientific Method requires *evidence* (i.e., *data* that is assessed to be relevant and reliable in a specific context) to formulate a valid hypothesis and also to disprove a valid hypothesis. Any hypothesis formulated without evidence is subjective and the product of an unreliable methodology resulting in scientifically unreliable determinations.

In addition, previous police investigations formulated that the fire origin and fire cause hypotheses of Ms. James with ignition by human involvement based on a lack of evidence of on the rear patio 3rd floor and the lack of evidence of human intent to initiate a fire where one would not have occurred, otherwise (i.e., “incendiary fire”). Evidence of human intent to initiate an incendiary fire is the discriminating factor between an “accidental” and “incendiary” fire cause classification. Any methodology where hypotheses are formulated without evidence (i.e., “invalid hypothesis”) is often referred to as the use of a “Negative Corpus” methodology, which is a scientifically unreliable methodology under the reliable application of the Scientific Method.

- **[Unreliable Application of the Scientific Method – Lack of Hypothesis Testing Using Available Evidence]** As previously discussed, a fire starting in the *area of origin* must be able

to produce the fire loss experienced through application of the Scientific Method. The investigators in this fire incident did not test their origin and fire cause hypotheses against the actual fire loss. They did not test their hypotheses against the fire dynamics associated with the ignition of any potential ignition sources and assess the resulting potential damage compared to the actual damage experienced. The investigators also did not test their hypotheses with a timeline analysis of the resulting fire. Had their hypotheses been tested using the available data and analysis, it would have provided evidence that disproves their hypotheses.

SUMMARY OF CONCLUSIONS

Based on the available evidence, reliable application of the Scientific Method, and the preceding analysis, MDF Forensics has reached the following determinations and opinions:

- The origin hypothesis of a fire starting on the 3rd floor rear porch due to an alleged stalking is inconsistent with the available evidence in this case and disproves this origin hypothesis.
- Based on the available evidence and the application of the Scientific Method, the most reliable determination of the *area of origin* for this fire that is uniquely consistent with the available evidence is a fire starting within the area of the couch.
- Based on the available evidence and the application of the Scientific Method, the most reliable determination of the *fire cause* that is uniquely consistent with the available evidence is an *undetermined fire cause*.
- Based on the available evidence and the application of the Scientific Method, the most reliable determination of the *fire cause classification* that is uniquely consistent with the available evidence is an *undetermined fire cause classification*.

- Based on the available evidence and the application of the Scientific Method, the most reliable determination of *responsibility* for the initiation of this fire incident that is uniquely consistent with the available evidence is *undetermined*. This is based on no evidence of human involvement in the initiation of the fire and no evidence of human intent to initiate a fire where one was not going to occur, otherwise.
- Based on the available data and the police and fire investigation, their report provides an analysis of the reliability of the application of the methodology used. The relevant methodology and the standard of care in the fire investigation community is the Scientific Method. The unreliable application of the Scientific Method produces scientifically unreliable determinations with respect to fire *origin, fire cause, fire cause classification*, and *responsibility* for the fire.
- The specific application of scientifically unreliable methodologies include: being able to eliminate all accidental causes, use of expectation bias, use of confirmation bias, unreliable interpretation of eyewitness observations, unreliable data of the assumption of presence of an open flame by human hands, use of an unreliable methodology (i.e., “Negative Corpus”), no hypothesis testing using time line analysis and fire modeling, no hypothesis testing using actual fire damage as evidence, general lack of hypothesis testing against available evidence. Thus, the police and fire investigation of this fire incident is the product of the application of a scientifically unreliable methodology and any determinations or opinions based on the application of an unreliable methodology are also scientifically unreliable.

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